

REMARKS

Claims 9-18 remain in this application. Claims 1-8 have been canceled by the preliminary amendment of September 22, 2006.

It is noted the cancelled claims 1-8 had been examined instead of pending claims 9-18.

Claims 9 and 12 have been amended. No new matter is entered by way of these amendments.

Claims 1, 2, and 4 were rejected as anticipated by KINOSHITA 6,157,165.

Claims 3 and 5-8 were rejected as obvious over KINOSHITA.

Novelty

KINOSHITA discloses a method and system for reducing voltage or current ripples in unit batteries within a battery apparatus.

KINOSHITA does not disclose a specific method or system for charging batteries. In figure 7, the "charging and discharging control converter 704" has a conventional structure which is well known from one skilled in the art of power electronics.

In KINOSHITA, the storage capacitor 111 is charged from unit battery 101, and then is discharged in adjacent unit battery 101b, as disclosed in column 8, lines 29-55. Thus, the storage

capacitor 111 is not charged from a direct-current source which would be distinct from a battery, as recited in amended Claims 9 or 12.

In KINOSHITA, the storage capacitor 104 is submitted to a plurality of charging steps until reaching a voltage equal the voltage of a unit battery 101a; as disclosed in Figure 2 and column 8, lines 29-55. Then, the energy stored in capacitor is transferred into capacitor 111 and further into adjacent unit battery 101b. It globally corresponds to energy transfers between unit batteries within a battery apparatus, but not a battery charging process from a direct-current source.

In conclusion, KINOSHITA does not disclose the following steps:

applying a higher DC voltage provided by a DC-DC converter to the terminals of a storage capacitor, so as to transfer energy into said storage capacitor,

upon detection of a predetermined voltage threshold, connecting said storage capacitor to said battery during a predetermined time, so as to transfer energy from said storage capacitor into said battery.

Thus, amended Claims 9 and 12 are not anticipated by KINOSHITA

Non-Obviousness Requirement

In KINOSHITA, the "charging and discharging control converter 704" is permanently connected to the ending terminals of the battery apparatus 101, as disclosed in Figure 7.

Moreover, Figure 6 features a charger 605 permanently connected to the battery apparatus 101.

Furthermore, KINOSHITA teaches how balancing voltages between the battery cells by transferring energy between said battery cells through a set of two capacitors which are selectively connected to each unit battery by switching means 103, as disclosed in Figure 6.

Such a structure could not permit to one skilled in the art to go from the ripple-reducing approach dedicated to multiple battery cells apparatus to the new charging approach recited in amended Claims 9 and 12. In fact, capacitors 111 and 104 disclosed in Kinoshita are designed and sized for a state of charge balancing function but not for a battery charging function as recited in the amended Claims 9 and 12.

As the function of capacitors 111 and 104 is intrinsically different from the function of the capacitor employed in the claimed invention, it would have not been obvious to one skilled in the art to propose the battery charging method and system of the present invention, from the teachings of Kinoshita et al.

In conclusion, amended Claims 9 and 12 are non-obviousness requirement over KINOSHITA.

In that the independent claims are both novel and non-obvious, both the independent claims and the claims depending therefrom are patentable.

Reconsideration and allowance of all the claims are respectfully requested.

This response is believed to be fully responsive and to put the case in condition for allowance. An early and favorable action on the merits is earnestly requested.

Should there be any matters that need to be resolved in the present application, the Examiner is respectfully requested to contact the undersigned at the telephone number listed below.

The Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 25-0120 for any additional fees required under 37 C.F.R. § 1.16 or under 37 C.F.R. § 1.17.

Respectfully submitted,

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